

AD-A100 556 ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/G 4/2
19304A MLRS, MISSILE NUMBERS V02-001, V01-003, V01-004, ROUND N--ETC(U)
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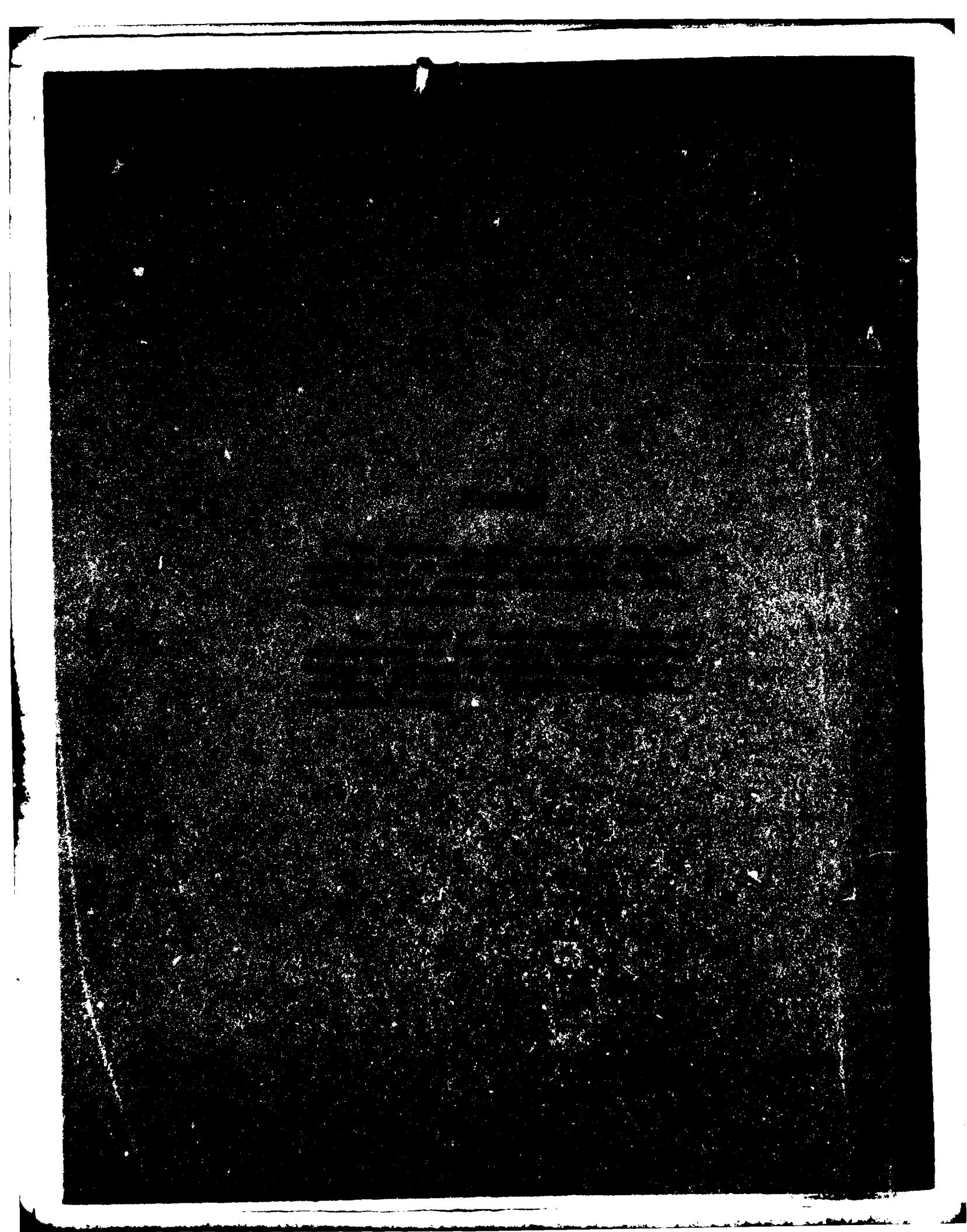
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| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of the 19304A MLRS, Missile Numbers V02-001, V01-003, and V01-004, Round Numbers V-143/MD-10, V-144/MD-11, and V-145/MD-12 presented in tabular form. | | |

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INTRODUCTION

19304D MLRS, Missile Numbers V02-001, V01-003, and V01-004, Round Numbers V-143/MD-10, V-144/MD-11, and V-145/MD-12, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1036:39, 1036:43, and 1036:48 MDT, 19 May 1981. The scheduled launch times were 1030, 1030:04.5, and 1030:09.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations

a. Surface

(1) Standard surface observations to include pressure, temperature ($^{\circ}$ C), relative humidity, dew point ($^{\circ}$ C), density (gm/m³), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

b. Upper Air

(1) Low level wind data were obtained from RAPTS T-9 pibal observations at:

SITE AND ALTITUDE

LC-36 2 KM
NICK 2 KM

(2) Air structure data (rawinsonde) were collected at the following Met Sites.

SITE AND TIME

WSD 0730 MDT
LC-37 0830 MDT
WSD 0930 MDT
LC-37 1037 MDT

| | |
|--------------------|---------|
| Accession For | |
| NTIS CR-81 | |
| DATA FILE | |
| Upper Level | |
| Justification | |
| | |
| By | |
| Distribution | |
| Availability Codes | |
| Avail and/or | |
| List | Special |
| A | |

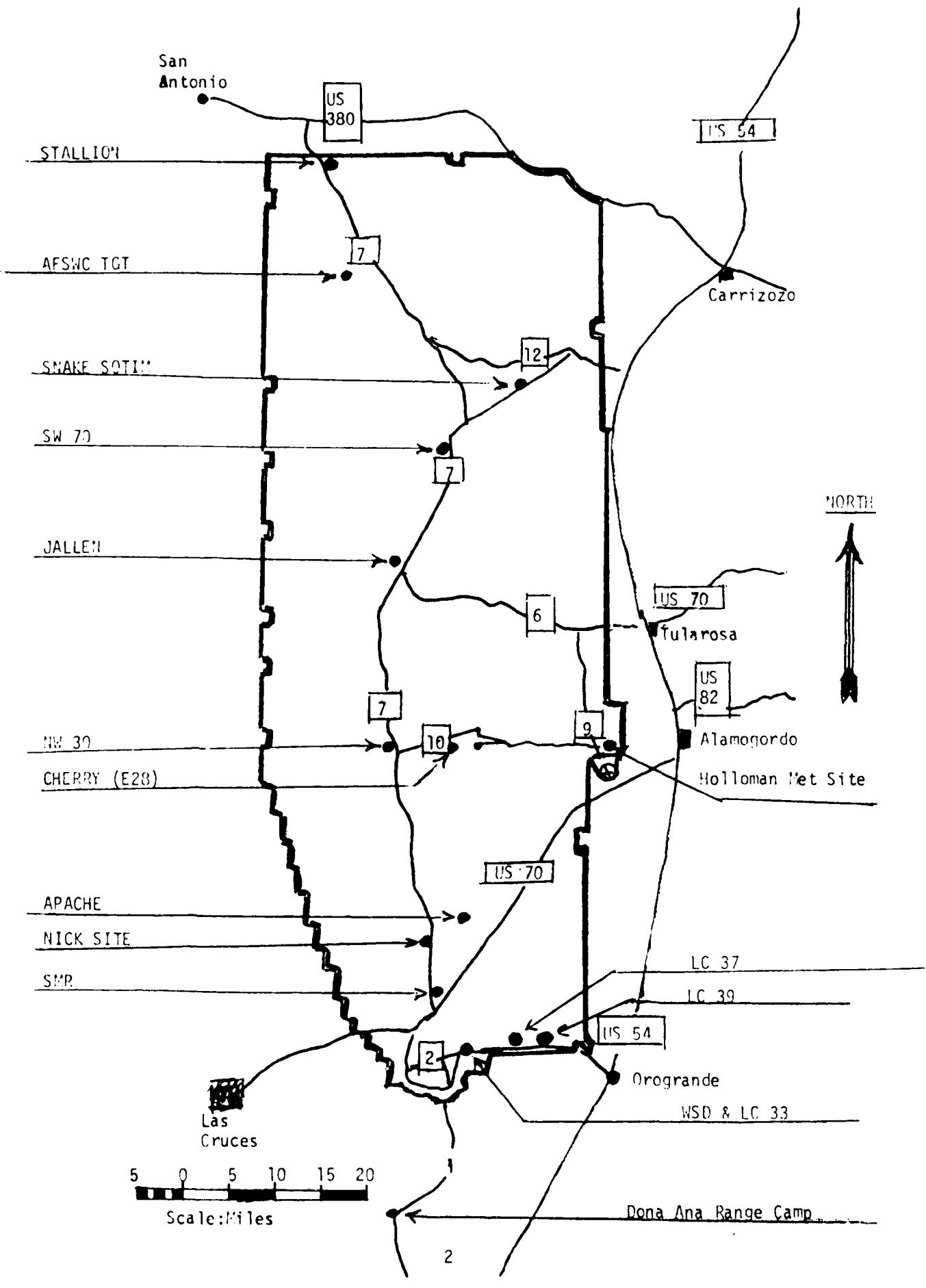


TABLE 1. Surface Observations taken at 1037 MDT,
 19 May 1981, at LC-33, 19304A MLRS,
 Missile No. V02-001, V01-003, V01-004,
 Round No. V-143/MD-10, V-144/MD-11,
 V-145/MD-12.

| | | |
|---------------------------------|-----------|-------------------|
| EL E V A T I O N | 3983.00 | FT/M |
| P R E S S U R E | 882.5 | MB |
| T E M P E R A T U R E | 18.9 | °C |
| R E L A T I V E H U M I D I T Y | 38 | |
| D E W P O I N T | 4.2 | °C |
| D E N S I T Y | 1047 | GM/M ³ |
| W I N D S P E E D | 10 | KTS |
| W I N D D I R E C T I O N | 155 | DEGREES |
| C L O U D C O V E R | C L E A R | |

TABLE 2 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS
1037 MDT
19 May 1981

| POLE #1 | | | POLE #2 | | | POLE #3 | | |
|------------|---------|-----------|------------|---------|---------|------------|---------|-----------|
| T-TIME SEC | DIR DEG | SPEED KTS | T-TIME SEC | DIR DEG | DIR DEG | T-TIME SEC | DIR DEG | SPEED KTS |
| T-30 | 140 | 12 | T-30 | 150 | 09 | T-30 | 153 | 09 |
| T-20 | 119 | 11 | T-20 | 127 | 09 | T-20 | 130 | 09 |
| T-10 | 136 | 10 | T-10 | 141 | 09 | T-10 | 153 | 10 |
| T0.0 | 132 | 12 | T0.0 | 129 | 10 | T0.0 | 166 | 09 |
| T+10 | 146 | 13 | T+10 | 142 | 11 | T+10 | 153 | 13 |

TABLE 3 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

| LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3923.00 (base) | | | LEVEL #2, 60 FEET X484,982.64, Y185,057.73, H3923.00 (base) | | |
|--|---------|-----------|--|---------|-----------|
| T-TIME SEC | DIR DEG | SPEED KTS | T-TIME SEC | DIR DEG | SPEED KTS |
| T-30 | 159 | 15 | T-30 | 151 | 17 |
| T-20 | 145 | 13 | T-20 | 151 | 16 |
| T-10 | 150 | 15 | T-10 | 152 | 16 |
| T0.0 | 149 | 17 | T0.0 | 149 | 16 |
| T+10 | 153 | 10 | T+10 | 152 | 15 |

| LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3923.00 (base) | | | LEVEL #4, 202 FEET X484,982.64, Y185,057.73, H3923.00 (base) | | |
|---|---------|-----------|---|---------|-----------|
| T-TIME SEC | DIR DEG | SPEED KTS | T-TIME SEC | DIR DEG | SPEED KTS |
| T-30 | 151 | 19 | T-30 | 142 | 18 |
| T-20 | 147 | 17 | T-20 | 142 | 17 |
| T-10 | 147 | 17 | T-10 | 141 | 16 |
| T0.0 | 146 | 15 | T0.0 | 139 | 17 |
| T+10 | 145 | 15 | T+10 | 142 | 17 |

TABLE 4

T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 19 May 1981

SITE: LC-36
 TIME: 1037 MDT
 WSTM COORDINATES:
 X= 504,465.56
 Y= 190,780.55
 H= 4040.71

SITE: NICK
 TIME: 1045 MDT
 WSTM COORDINATES:
 X= 470,734.56
 Y= 255,775.64
 H= 4126.57

| LAYER MIDPOINT METERS ASL | DIRECTION DEGREES | SPEED KNOTS | LAYER MIDPOINT METERS ASL | DIRECTION DEGREES | SPEED KNOTS |
|------------------------------|----------------------|----------------|------------------------------|----------------------|----------------|
| SURFACE | 155 | 09 | SURFACE | 150 | 10 |
| 150 | 157 | 09 | 150 | 185 | 18 |
| 210 | 148 | 11 | 210 | 175 | 22 |
| 270 | 154 | 13 | 270 | 170 | 20 |
| 330 | 154 | 14 | 330 | 175 | 15 |
| 390 | 155 | 15 | 390 | 165 | 18 |
| 500 | 149 | 14 | 500 | 165 | 20 |
| 650 | 143 | 17 | 650 | 175 | 21 |
| 800 | 139 | 22 | 800 | 175 | 22 |
| 950 | 145 | 16 | 950 | 160 | 25 |
| 1150 | 148 | 10 | 1150 | 160 | 21 |
| 1350 | 165 | 17 | 1350 | 180 | 18 |
| 1550 | 178 | 17 | 1550 | 200 | 11 |
| 1750 | 193 | 10 | 1750 | 205 | 08 |
| 2000 | 192 | 11 | 2000 | MISG | |

Wind data obtained from RAPTS T-9 radar Tracked Pilot-Balloon observation.

TABLE 5

AIMING AND T-TIME MET MESSAGES
19 May 1981

| | |
|-------------------|-------------------|
| WSD 0730 MDT | LC-37 0830 MDT |
| METCM1324064 | METCM1324063 |
| 191350122882 | 191450124881 |
| 00329005 28910882 | 00249009 29090881 |
| 01302009 28790872 | 01237013 28830871 |
| 02245013 28520846 | 02225018 28570845 |
| 03238023 28350806 | 03234022 28350806 |
| 04313018 28350759 | 04302017 28340759 |
| 05382014 28280715 | 05372011 28290714 |
| 06411015 27910673 | 06383014 27900672 |

| | |
|-------------------|-------------------|
| WSD 0930 MDT | LC-37 1037 MDT |
| METCM1324064 | METCM1324063 |
| 191530122883 | 191660124881 |
| 00213018 29170883 | 00196008 29370881 |
| 01258027 29040872 | 01190020 29180870 |
| 02240016 28740847 | 02244014 28910845 |
| 03257018 28370807 | 03254015 28520806 |
| 04298016 28290760 | 04308017 28470759 |
| 05355012 28350716 | 05343013 28380715 |
| 06356016 27960674 | 06337020 27950673 |

STATION ALTITUDE 3989.00 FEET MSL
 19 MAY 81
 ASCENSION NO. 345

SIGNIFICANT LEVEL DATA
 1390021345
 WHITE SANDS

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

TABLE 6

| PRESSURE MILLIBARS | GEOMETRIC ALTITUDE MSL FEET | TEMPERATURE DEGREES CENTIGRADE | REL.HUM. PERCENT |
|-----------------------|-----------------------------------|-----------------------------------|---------------------|
| AIR | DEWPNT | CENTIGRADE | |
| 882.1 | 3989.0 | 15.1 | 44.0 |
| 850.0 | 5013.3 | 11.4 | 46.0 |
| 809.4 | 6351.3 | 9.1 | 52.0 |
| 771.6 | 7656.7 | 10.5 | 40.0 |
| 743.0 | 8686.9 | 8.8 | 57.0 |
| 733.6 | 9034.0 | 10.3 | 31.0 |
| 706.0 | 10310.7 | 8.2 | 35.0 |
| 651.2 | 12254.1 | 3.2 | 42.0 |
| 624.2 | 13377.2 | 5.5 | 51.0 |
| 598.4 | 14487.0 | -1.4 | 23.0 |
| 506.0 | 19092.5 | -12.8 | 21.0 |
| 464.8 | 20907.4 | -17.5 | 20.0 |
| 441.0 | 22197.7 | -19.3 | 17.0 |
| 400.0 | 24557.3 | -25.2 | 18.0 |
| 382.6 | 25617.1 | -26.7 | 17.0 |
| 341.2 | 28303.2 | -33.0 | 18.0 |
| 321.6 | 29661.0 | -37.2 | |

STATION ALTITUDE 3989.60 FEET MSL
19 MAY 81
ASCENSION NO. 345

UPPER AIR DATA
1390020345
WHITE SANDS
MSL FLEET

TABLE 7

| GEOMETRIC ALTITUDE MSL FLEET | PRESSURE MILLIBARS | TEMPERATURE AIR DEPOINT DEGREES CENTIGRADE | REL HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | WIND DATA DIRECTION DEGREES (TN) | INDEX OF REFRACTION |
|------------------------------|--------------------|--|------------------|------------------------|----------------------|----------------------------------|---------------------|
| 5989.0 | 882.1 | 15.1 | 44.0 | 1062.6 | 662.5 | 185.0 | 5.1 |
| 4000.0 | 881.7 | 15.1 | 44.0 | 1062.3 | 662.4 | 184.4 | 5.1 |
| 4500.0 | 865.9 | 13.3 | 45.0 | 1050.1 | 660.3 | 164.2 | 7.3 |
| 5000.0 | 850.4 | 11.4 | 46.0 | 1038.1 | 658.1 | 154.1 | 10.0 |
| 5500.0 | 835.0 | 10.6 | 48.2 | 1022.4 | 657.1 | 148.3 | 12.8 |
| 6000.0 | 819.9 | 9.7 | 50.4 | 1006.9 | 656.1 | 144.7 | 15.7 |
| 6500.0 | 803.0 | 9.3 | 50.6 | 990.2 | 655.6 | 142.2 | 18.7 |
| 7000.0 | 790.4 | 9.8 | 46.0 | 970.5 | 655.2 | 148.2 | 18.9 |
| 7500.0 | 776.0 | 10.3 | -2.2 | 41.4 | 951.2 | 656.8 | 157.5 |
| 8000.0 | 762.0 | 9.9 | -3.4 | 39.0 | 935.4 | 655.2 | 167.0 |
| 8500.0 | 748.1 | 9.1 | -4.6 | 37.5 | 921.3 | 655.2 | 176.7 |
| 9000.0 | 734.5 | 10.2 | -5.9 | 31.6 | 901.4 | 656.4 | 188.9 |
| 9500.0 | 721.2 | 9.5 | -6.1 | 32.5 | 886.9 | 655.7 | 203.4 |
| 10000.0 | 708.0 | 8.7 | -6.2 | 34.0 | 873.3 | 654.7 | 212.2 |
| 10500.0 | 695.1 | 7.7 | -6.5 | 35.7 | 860.4 | 653.6 | 220.9 |
| 11000.0 | 682.3 | 6.4 | -7.0 | 37.5 | 848.5 | 652.0 | 227.1 |
| 11500.0 | 669.7 | 5.1 | -7.6 | 39.3 | 836.7 | 650.5 | 225.9 |
| 12000.0 | 657.4 | 3.9 | -8.1 | 41.1 | 825.2 | 649.0 | 203.4 |
| 12500.0 | 645.2 | 2.6 | -8.4 | 44.0 | 813.5 | 647.5 | 212.2 |
| 13000.0 | 633.1 | 1.4 | -8.4 | 48.0 | 801.8 | 646.1 | 227.4 |
| 13500.0 | 621.3 | .3 | -9.4 | 47.9 | 790.1 | 644.8 | 229.4 |
| 14000.0 | 609.6 | -.6 | -14.0 | 35.3 | 778.1 | 643.6 | 231.6 |
| 14500.0 | 598.1 | -1.4 | -19.8 | 23.0 | 766.2 | 642.4 | 225.0 |
| 15000.0 | 586.5 | -2.7 | -21.0 | 22.8 | 754.9 | 640.9 | 237.9 |
| 15500.0 | 575.2 | -3.9 | -22.2 | 22.6 | 743.8 | 639.5 | 240.0 |
| 16000.0 | 564.1 | -5.1 | -23.3 | 22.3 | 732.8 | 638.0 | 241.2 |
| 16500.0 | 553.2 | -6.4 | -21.5 | 22.1 | 722.0 | 636.5 | 242.3 |
| 17000.0 | 542.5 | -7.6 | -25.6 | 21.9 | 711.4 | 635.0 | 242.4 |
| 17500.0 | 532.0 | -8.9 | -26.8 | 21.7 | 701.0 | 633.5 | 242.2 |
| 18000.0 | 521.8 | -10.1 | -28.0 | 21.5 | 690.7 | 632.0 | 241.9 |
| 18500.0 | 511.7 | -11.3 | -29.1 | 21.3 | 680.6 | 630.5 | 241.6 |
| 19000.0 | 501.8 | -12.6 | -30.3 | 21.0 | 670.6 | 629.0 | 241.1 |
| 19500.0 | 491.9 | -13.9 | -31.5 | 20.8 | 660.6 | 627.4 | 240.7 |
| 20000.0 | 482.1 | -15.2 | -32.7 | 20.5 | 650.7 | 625.8 | 241.2 |
| 20500.0 | 472.5 | -16.4 | -34.0 | 20.2 | 641.0 | 624.3 | 242.5 |
| 21000.0 | 462.0 | -17.6 | -35.2 | 19.8 | 631.1 | 622.8 | 243.8 |
| 21500.0 | 453.7 | -18.3 | -36.4 | 18.6 | 620.1 | 622.0 | 244.7 |
| 22000.0 | 444.6 | -19.0 | -37.6 | 17.5 | 609.3 | 621.1 | 245.1 |
| 22500.0 | 435.5 | -20.1 | -38.6 | 17.1 | 599.4 | 619.8 | 245.5 |
| 23000.0 | 426.6 | -21.3 | -39.6 | 17.3 | 590.0 | 618.3 | 245.8 |

GEODETIC COORDINATES
32°40'04.3 LAT DEG
106°37'03.3 LONG DEG

STATION ALTITUDE 3,989.00 FEET MSL
 19 MAY 81 0730 IRS MD
 ASCENSION NO. 345

UPPER AIR DATA
 1390020345
 WHITE SANDS
 MSL

TABLE 7 CON'T

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE DEGREES CENTIGRADE | AIR DEWPOINT DEGREES CENTIGRADE | REL.HUM. PERCENT | GM/CURIC METER | SOUND KNOTS | WIND DATA DIRECTION DEGREES(TN) | SPEED KNOTS | INDEX OF REFRACTION |
|-----------------------------|--------------------|--------------------------------|---------------------------------|------------------|----------------|-------------|---------------------------------|-------------|---------------------|
| 23500.0 | 417.9 | -22.6 | -40.5 | 17.6 | 580.8 | 616.8 | 245.8 | 29.4 | 1.000130 |
| 24000.0 | 409.3 | -23.8 | -41.4 | 17.8 | 571.8 | 615.2 | 245.8 | 28.6 | 1.000128 |
| 24500.0 | 400.9 | -25.1 | -42.4 | 18.0 | 562.9 | 613.7 | 245.9 | 27.8 | 1.000126 |
| 25000.0 | 392.6 | -25.8 | -43.2 | 17.6 | 553.0 | 612.7 | 247.0 | 27.2 | 1.000124 |
| 25500.0 | 384.5 | -26.5 | -44.1 | 17.1 | 543.1 | 611.8 | 248.2 | 26.5 | 1.000122 |
| 26000.0 | 376.4 | -27.6 | -45.0 | 17.1 | 533.9 | 610.5 | 249.5 | 25.9 | 1.000120 |
| 26500.0 | 368.5 | -28.8 | -45.8 | 17.3 | 525.2 | 609.0 | 250.1 | 24.7 | 1.000118 |
| 27000.0 | 360.7 | -29.9 | -46.7 | 17.5 | 516.6 | 607.6 | 250.6 | 23.3 | 1.000116 |
| 27500.0 | 353.1 | -31.1 | -47.6 | 17.7 | 508.2 | 606.1 | 251.2 | 21.9 | 1.000114 |
| 28000.0 | 345.6 | -32.3 | -48.5 | 17.9 | 499.9 | 604.6 | | | 1.000112 |
| 28500.0 | 338.3 | -33.6 | -50.9 | 15.4** | 491.9 | 603.0 | | | 1.000110 |
| 29000.0 | 331.0 | -35.2 | -56.8 | 8.8** | 484.5 | 601.0 | | | 1.000108 |
| 29500.0 | 323.9 | -36.7 | -68.5 | 2.1** | 477.2 | 599.1 | | | 1.000106 |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.00 FEET MSL
19 MAY 31 0730 HRS MDT
ASCENSION NO. 345

MANDATORY LEVELS
1390020343
WHITE SANDS

TABLE 8

GEODETIC COORDINATES
32°40.043 LAT DEG
106.37053 LON DEG

| PRESSURE MILLIBARS | GEOPOTENTIAL FEET | TEMPERATURE DEGREES | AIR DEPOINT CENTIGRAVE | KEL.HUM. PERCENT | WIND DATA DIRECTION DEGREES (TN) | WIND SPEED KNOTS |
|-----------------------|----------------------|------------------------|------------------------------|---------------------|--|---------------------|
| 850.0 | 5010. | 11.4 | .2 | 46. | 153.9 | 10.0 |
| 800.0 | 6664. | 9.4 | -.7 | 49. | 142.3 | 19.4 |
| 750.0 | 8424. | 9.2 | -4.4 | 38. | 175.2 | 17.1 |
| 700.0 | 10301. | 8.2 | -6.3 | 35. | 217.5 | 14.5 |
| 650.0 | 12290. | 3.1 | -8.4 | 42. | 224.5 | 20.0 |
| 600.0 | 14400. | -1.3 | -18.8 | 25. | 234.2 | 26.3 |
| 550.0 | 16652. | -6.8 | -24.8 | 22. | 242.0 | 28.6 |
| 500.0 | 19066. | -12.8 | -30.5 | 21. | 261.0 | 32.6 |
| 450.0 | 21670. | -18.6 | -36.9 | 18. | 244.8 | 32.6 |
| 400.0 | 24516. | -25.2 | -42.5 | 16. | 245.9 | 27.8 |
| 350.0 | 27661. | -31.6 | -48.0 | 16. | 251.4 | 21.4 |

STATION ALTITUDE 4051.37 FEET MSL
 19 MAY 81 0800 HRS MDT
 ASCENSION NO. 92

SIGNIFICANT LEVEL DATA
 1390180092
 LC-37

TABLE 9

GEODETIC COORDINATES
 32°40'17" LAT DEG
 106°31'23" LON DEG

| PRESSURE GEOMETRIC MILLIBARS | GEOMETRIC ALTITUDE METERS MSL FEET | TEMPERATURE DEGREES CENTIGRADE | AIR DEWPOINT DEGREES CENTIGRADE | REL.HUM. PERCENT |
|---------------------------------|---|-----------------------------------|------------------------------------|---------------------|
| 881.0 | 4051.4 | 16.8 | 3.1 | 40.0 |
| 873.2 | 4299.1 | 14.3 | 1.6 | 42.0 |
| 850.0 | 5043.0 | 12.1 | 1.4 | 48.0 |
| 814.2 | 6221.0 | 9.1 | .0 | 53.0 |
| 774.6 | 7580.3 | 9.8 | -2.2 | 43.0 |
| 755.4 | 8264.1 | 8.8 | -3.4 | 42.0 |
| 736.4 | 8959.1 | 10.7 | -6.1 | 30.0 |
| 700.0 | 10340.1 | 8.0 | -6.1 | 36.0 |
| 617.4 | 13693.8 | -5 | -7.7 | 58.0 |
| 608.6 | 14071.3 | -5 | -11.2 | 44.0 |
| 591.2 | 14831.1 | -2.5 | -13.3 | 43.0 |
| 565.6 | 15980.8 | -4.9 | -24.3 | 20.0 |
| 523.8 | 17947.8 | -9.6 | -26.3 | 24.0 |
| 500.0 | 19121.0 | -13.1 | -28.1 | 27.0 |
| 451.4 | 21651.2 | -19.7 | -31.2 | 35.0 |
| 443.8 | 22065.8 | -19.9 | -37.5 | 19.0 |
| 414.0 | 23753.2 | -22.6 | -40.8 | 17.0 |
| 400.0 | 24580.1 | -24.9 | -42.8 | 17.0 |
| 392.4 | 25039.1 | -25.0 | -43.4 | 16.0 |
| 336.4 | 28658.1 | -33.7 | -50.2 | 17.0 |
| 304.2 | 30950.2 | -40.1 | | |

SATION ALTITUDE 4051.37 FEET MSL
19 MAY 81 0830 HRS MDT
ASCENSION NO. 92

UPPER AIR DATA
139n180n92
LC-37
TABLE 10

GEODETIC COORDINATES
32°40'17" LAT UEG
106°31'23" LON UEG

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE AIR DEGREES CENTIGRADE | REL.HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | WIND DIRECTION DEGREES (TN) | INDEX OF REFRACTION |
|--------------------------------|-----------------------|---------------------------------------|---------------------|---------------------------|----------------------------|--------------------------------|---------------------------|
| 4051.4 | 881.3 | 16.8 | 3.1 | 40.0 | 1055.0 | 664.5 | 140.0 |
| 4500.0 | 860.9 | 13.7 | 1.6 | 43.6 | 1049.6 | 660.8 | 133.7 |
| 5000.0 | 851.3 | 12.2 | 1.5 | 47.7 | 1036.1 | 659.1 | 129.6 |
| 5500.0 | 835.9 | 10.9 | 0.9 | 49.9 | 1022.0 | 657.6 | 127.1 |
| 6000.0 | 820.8 | 9.7 | 0.3 | 52.1 | 1008.1 | 656.1 | 127.5 |
| 6500.0 | 805.9 | 9.2 | -0.4 | 50.9 | 991.4 | 655.6 | 134.1 |
| 7000.0 | 791.3 | 9.5 | -1.2 | 47.3 | 972.6 | 655.8 | 143.0 |
| 7500.0 | 776.9 | 9.8 | -2.0 | 43.6 | 954.2 | 656.1 | 155.5 |
| 8000.0 | 762.8 | 9.2 | -2.9 | 42.4 | 938.8 | 655.4 | 165.3 |
| 8500.0 | 746.9 | 9.4 | -4.2 | 37.9 | 921.1 | 655.6 | 173.6 |
| 9000.0 | 735.3 | 10.6 | -6.1 | 30.2 | 900.9 | 656.9 | 184.7 |
| 9500.0 | 721.9 | 9.6 | -6.1 | 32.4 | 887.5 | 656.8 | 201.1 |
| 10000.0 | 708.8 | 8.7 | -6.1 | 34.5 | 874.4 | 654.7 | 209.6 |
| 10500.0 | 695.8 | 7.6 | -6.1 | 37.0 | 861.6 | 653.4 | 215.4 |
| 11000.0 | 682.9 | 6.3 | -6.2 | 40.3 | 849.4 | 652.0 | 215.4 |
| 11500.0 | 670.3 | 5.1 | -6.3 | 43.6 | 837.5 | 650.5 | 214.6 |
| 12000.0 | 657.8 | 3.8 | -6.5 | 46.9 | 825.7 | 649.0 | 211.2 |
| 12500.0 | 645.6 | 2.5 | -6.8 | 50.2 | 814.1 | 647.5 | 208.8 |
| 13000.0 | 633.6 | 1.3 | -7.1 | 53.4 | 802.7 | 646.0 | 210.2 |
| 13500.0 | 621.9 | -0 | -7.6 | 56.7 | 791.5 | 644.5 | 212.5 |
| 14000.0 | 610.3 | -5 | -10.5 | 46.6 | 778.4 | 643.8 | 218.7 |
| 14500.0 | 598.7 | -1.6 | -12.4 | 43.4 | 767.0 | 642.4 | 223.8 |
| 15000.0 | 587.4 | -2.9 | -14.6 | 39.6 | 756.1 | 640.9 | 227.8 |
| 15500.0 | 576.2 | -3.9 | -10.0 | 29.6 | 744.8 | 639.5 | 230.7 |
| 16000.0 | 565.2 | -4.9 | -24.4 | 20.0 | 733.7 | 638.2 | 231.6 |
| 16500.0 | 554.3 | -6.1 | -24.8 | 21.1 | 722.7 | 636.8 | 232.8 |
| 17000.0 | 543.5 | -7.3 | -25.3 | 22.1 | 712.0 | 635.3 | 234.4 |
| 17500.0 | 533.0 | -8.5 | -25.8 | 23.1 | 701.4 | 633.9 | 235.4 |
| 18000.0 | 522.7 | -9.8 | -26.4 | 24.1 | 691.0 | 632.4 | 236.0 |
| 18500.0 | 512.5 | -11.2 | -27.1 | 25.4 | 681.3 | 630.6 | 235.6 |
| 19000.0 | 502.4 | -12.7 | -27.9 | 26.7 | 671.8 | 628.8 | 234.8 |
| 19500.0 | 492.4 | -14.1 | -28.5 | 28.2 | 661.8 | 627.2 | 234.0 |
| 20000.0 | 482.5 | -15.4 | -29.1 | 29.6 | 651.9 | 625.6 | 234.6 |
| 20500.0 | 472.9 | -16.7 | -29.7 | 31.4 | 642.1 | 624.0 | 236.2 |
| 21000.0 | 463.4 | -18.0 | -30.3 | 32.9 | 632.5 | 622.4 | 237.7 |
| 21500.0 | 454.2 | -19.3 | -31.0 | 34.5 | 623.0 | 620.8 | 239.8 |
| 22000.0 | 445.0 | -19.9 | -36.2 | 21.5 | 611.9 | 620.1 | 242.2 |
| 22500.0 | 435.9 | -20.6 | -38.4 | 18.5 | 601.2 | 619.2 | 244.6 |
| 23000.0 | 427.0 | -21.4 | -39.3 | 17.9 | 590.8 | 618.2 | 246.7 |
| 23500.0 | 418.3 | -22.2 | -40.3 | 17.3 | 580.6 | 617.2 | 247.0 |

STATION ALTITUDE 4051.37 FEET MSL
19 MAY 81 0830 IRS MDI
ASCENSION NO. 92

UPPER AIR DATA
1390180092
LC-37
TABLE 10 CON'T

| GEOGRAPHIC ALTITUDE METERS | PRESSURE MILLIBARS | TEMPERATURE DEGREES CENTIGRADE | AIR DEPOINT | REL.HUM. PERCENT | SOUND METER KNOTS | SPEED OF WIND DATA DEGREES (IN) KNOTS | INDEX OF REFRACTION |
|-------------------------------|-----------------------|-----------------------------------|----------------|---------------------|-------------------------|--|---------------------------|
| 24000.0 | 409.8 | -23.3 | -41.4 | 17.0 | 571.2 | 615.9 | 247.9 |
| 24500.0 | 401.3 | -24.7 | -42.6 | 17.0 | 562.6 | 614.1 | 249.6 |
| 25000.0 | 393.0 | -25.0 | -43.4 | 16.1 | 551.7 | 613.7 | 252.2 |
| 25500.0 | 384.8 | -26.1 | -44.3 | 16.1 | 542.5 | 612.4 | 254.1 |
| 26000.0 | 376.7 | -27.3 | -45.2 | 16.3 | 533.7 | 610.9 | 254.1 |
| 26500.0 | 368.8 | -28.5 | -46.1 | 16.4 | 525.1 | 609.4 | 252.1 |
| 27000.0 | 361.0 | -29.7 | -47.1 | 16.5 | 516.5 | 607.9 | 249.9 |
| 27500.0 | 353.4 | -30.9 | -48.0 | 16.7 | 508.2 | 606.4 | 247.4 |
| 28000.0 | 346.0 | -32.1 | -48.9 | 16.8 | 500.0 | 604.9 | 247.8 |
| 28500.0 | 338.7 | -33.3 | -49.9 | 17.0 | 491.9 | 603.3 | 250.3 |
| 29000.0 | 331.4 | -34.7 | -52.3 | 14.5** | 484.0 | 601.7 | 256.7 |
| 29500.0 | 324.2 | -36.1 | -55.9 | 10.8** | 476.3 | 599.9 | 265.7 |
| 30000.0 | 317.2 | -37.4 | -60.3 | 7.0** | 468.7 | 598.1 | 16.2 |
| 30500.0 | 310.3 | -38.8 | -66.9 | 3.3** | 461.3 | 596.3 | 16.0 |
| | | | | | | | 1.000105 |
| | | | | | | | 1.000103 |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4051.37 FEET MSL
19 MAY 81 0830 HRS MDT
ASCENSION NO. 92

MANDATORY LEVELS
1390180092
LC-37
TABLE 11

GEODETIC COORDINATES
32°40'17.5" LAT DEG
106°31'23.2" LON DEG

| PRESSURE MILLIBARS | GEOPOTENTIAL FEET | TEMPERATURE AIR DEGREES | DEWPOINT CENTIGRADE | REL. HUM. PERCENT | WIND DATA DIRECTION DEGREES (TN) | WIND SPEED KNOTS |
|-----------------------|----------------------|-------------------------------|------------------------|----------------------|--|---------------------|
| 850.0 | 5039. | 12.1 | 1.4 | 48. | 129.4 | 16.0 |
| 800.0 | 6695. | 9.3 | -0.7 | 49. | 136.8 | 21.0 |
| 750.0 | 8452. | 9.3 | -4.0 | 39. | 172.8 | 16.5 |
| 700.0 | 10330. | 8.0 | -6.1 | 36. | 213.5 | 12.0 |
| 650.0 | 12318. | 3.0 | -6.7 | 49. | 209.4 | 16.9 |
| 600.0 | 14428. | -1.5 | -12.3 | 44. | 223.3 | 29.7 |
| 550.0 | 16680. | -6.6 | -25.0 | 21. | 233.4 | 28.0 |
| 500.0 | 19094. | -13.1 | -28.1 | 27. | 234.7 | 30.3 |
| 450.0 | 21694. | -19.7 | -32.1 | 32. | 240.6 | 32.6 |
| 400.0 | 24539. | -24.9 | -42.8 | 17. | 249.9 | 26.8 |
| 350.0 | 27608. | -31.5 | -48.4 | 17. | 248.9 | 20.6 |

STATION ALTITUDE 3989.00 FEET MSL
19 MAY 81 0930 HRS MDT
ASCENSION NO. 346

SIGNIFICANT LEVEL DATA
1390020340
WHITE SANDS

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

TABLE 12

| PRESSURE MILLIBARS | GEOMETRIC ALTITUDE MSL FEET | TEMPERATURE DEGREES CENTIGRADE | AIR DEWPOINT DEGREES CENTIGRADE | REL. HUM. PERCENT |
|-----------------------|-----------------------------------|-----------------------------------|---------------------------------------|----------------------|
| 882.7 | 3989.0 | 17.7 | 4.3 | 41.0 |
| 850.0 | 5041.1 | 13.4 | 4.3 | 54.0 |
| 785.6 | 7198.1 | 7.5 | 1.1 | 64.0 |
| 776.2 | 7524.7 | 8.4 | .9 | 59.0 |
| 757.4 | 8190.8 | 8.2 | .4 | 58.0 |
| 748.4 | 8515.5 | 8.3 | -.7 | 53.0 |
| 739.0 | 8860.7 | 11.3 | -.2 | 45.0 |
| 700.0 | 10341.1 | 8.2 | -2.4 | 47.0 |
| 639.6 | 12765.6 | 2.4 | -6.4 | 52.0 |
| 622.2 | 13496.7 | .7 | -5.5 | 63.0 |
| 605.0 | 14235.3 | -1.0 | -6.9 | 64.0 |
| 530.0 | 17657.0 | -9.2 | -19.2 | 44.0 |
| 500.0 | 19129.2 | -12.9 | -22.1 | 46.0 |
| 466.8 | 20639.3 | -17.0 | -27.3 | 40.0 |
| 443.6 | 22095.0 | -18.2 | -30.1 | 34.0 |
| 401.0 | 24604.2 | -24.9 | -35.9 | 35.0 |
| 385.0 | 25492.2 | -25.9 | -37.0 | 34.0 |
| 324.4 | 29515.1 | -36.1 | -46.2 | 34.0 |

STATION ALTITUDE 3989.00 FEET MSL
19 MAY 81 0930 HRS MDT
ASCENSION NO. 346

UPPER AIR DATA
1390020346
WHITE SANDS

TABLE 13

| GEOGRAPHIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE DEGREES CENTIGRADE | AIR DEWPOINT CENTIGRADE | REL.HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | DIRECTION DEGREES (TN) | WIND DATA SPEED KNOTS | INDEX OF REFRACTION |
|---------------------------------|-----------------------|-----------------------------------|----------------------------|---------------------|---------------------------|----------------------------|---------------------------|-----------------------------|---------------------------|
| 3989.0 | 882.7 | 17.7 | 4.3 | 41.0 | 1053.5 | 665.6 | 120.0 | 18.1 | 1.000272 |
| 4000.0 | 832.4 | 17.7 | 4.3 | 41.1 | 1053.2 | 665.5 | 120.1 | 18.1 | 1.000272 |
| 4500.0 | 866.7 | 15.6 | 4.4 | 47.3 | 1041.7 | 665.2 | 124.8 | 17.5 | 1.000270 |
| 5000.0 | 851.3 | 13.6 | 4.3 | 53.5 | 1030.5 | 660.9 | 129.8 | 17.0 | 1.000268 |
| 5500.0 | 835.9 | 12.1 | 3.7 | 56.1 | 1017.0 | 659.2 | 135.0 | 16.7 | 1.000264 |
| 6000.0 | 820.7 | 10.6 | 3.0 | 58.4 | 1003.5 | 657.6 | 140.3 | 16.5 | 1.000259 |
| 6500.0 | 805.9 | 9.4 | 2.2 | 60.8 | 990.2 | 656.0 | 145.8 | 16.5 | 1.000255 |
| 7000.0 | 791.3 | 8.0 | 1.5 | 63.1 | 977.2 | 654.3 | 152.0 | 16.3 | 1.000250 |
| 7500.0 | 776.9 | 8.3 | .9 | 59.4 | 958.5 | 654.7 | 159.3 | 16.1 | 1.000245 |
| 8000.0 | 762.7 | 8.3 | .6 | 58.3 | 941.2 | 654.6 | 160.6 | 16.2 | 1.000240 |
| 8500.0 | 748.8 | 8.3 | -.6 | 53.2 | 924.1 | 654.5 | 173.7 | 15.5 | 1.000234 |
| 9000.0 | 735.2 | 11.0 | -.4 | 45.2 | 898.6 | 657.7 | 181.5 | 14.9 | 1.000228 |
| 9500.0 | 721.9 | 10.0 | -1.1 | 45.9 | 885.7 | 656.5 | 189.0 | 14.6 | 1.000224 |
| 10000.0 | 704.8 | 8.9 | -1.9 | 46.5 | 872.9 | 655.2 | 193.4 | 14.4 | 1.000220 |
| 10500.0 | 695.9 | 7.8 | -2.7 | 47.3 | 860.4 | 653.9 | 197.8 | 14.2 | 1.000216 |
| 11000.0 | 683.0 | 6.6 | -3.5 | 48.4 | 848.3 | 652.5 | 200.4 | 15.4 | 1.000212 |
| 11500.0 | 670.4 | 5.4 | -4.3 | 49.4 | 836.3 | 651.0 | 200.7 | 18.0 | 1.000208 |
| 12000.0 | 658.1 | 4.2 | -5.1 | 50.4 | 824.5 | 649.6 | 200.9 | 20.6 | 1.000204 |
| 12500.0 | 646.0 | 3.0 | -6.0 | 51.5 | 812.9 | 648.2 | 202.5 | 23.2 | 1.000201 |
| 13000.0 | 634.0 | 1.9 | -6.1 | 55.5 | 801.2 | 646.8 | 204.3 | 26.0 | 1.000198 |
| 13500.0 | 622.1 | .7 | -5.5 | 63.0 | 789.5 | 645.5 | 205.7 | 28.7 | 1.000196 |
| 14000.0 | 610.4 | -.5 | -6.5 | 63.7 | 778.0 | 644.1 | 209.3 | 29.2 | 1.000193 |
| 14500.0 | 598.8 | -1.6 | -7.8 | 62.5 | 766.7 | 642.6 | 213.0 | 29.5 | 1.000188 |
| 15000.0 | 587.4 | -2.8 | -9.6 | 59.5 | 755.5 | 641.1 | 216.5 | 29.9 | 1.000184 |
| 15500.0 | 576.1 | -4.0 | -11.3 | 56.6 | 744.5 | 639.6 | 220.0 | 29.6 | 1.000179 |
| 16000.0 | 565.1 | -5.2 | -13.1 | 53.7 | 733.7 | 638.1 | 223.5 | 29.4 | 1.000175 |
| 16500.0 | 554.3 | -6.4 | -14.9 | 50.8 | 723.0 | 636.7 | 226.0 | 29.5 | 1.000171 |
| 17000.0 | 543.6 | -7.6 | -16.7 | 47.8 | 712.4 | 635.2 | 226.4 | 30.0 | 1.000168 |
| 17500.0 | 533.2 | -8.8 | -18.6 | 44.9 | 702.1 | 635.7 | 220.9 | 30.4 | 1.000164 |
| 18000.0 | 522.9 | -10.1 | -19.8 | 44.5 | 691.7 | 632.2 | 227.4 | 30.9 | 1.000161 |
| 18500.0 | 512.6 | -11.3 | -20.8 | 45.1 | 681.4 | 630.7 | 228.0 | 31.2 | 1.000158 |
| 19000.0 | 502.6 | -12.6 | -21.8 | 45.8 | 671.3 | 629.1 | 228.0 | 31.6 | 1.000155 |
| 19500.0 | 492.6 | -13.8 | -23.2 | 44.7 | 661.2 | 627.6 | 230.9 | 31.1 | 1.000153 |
| 20000.0 | 482.8 | -15.0 | -24.7 | 42.9 | 651.1 | 626.2 | 233.8 | 30.3 | 1.000150 |
| 20500.0 | 473.2 | -16.2 | -26.3 | 41.2 | 641.2 | 624.7 | 236.8 | 29.6 | 1.000147 |
| 21000.0 | 463.8 | -17.2 | -27.7 | 39.2 | 630.8 | 623.5 | 240.9 | 28.3 | 1.000144 |
| 21500.0 | 454.4 | -17.6 | -28.8 | 36.8 | 619.3 | 622.9 | 245.4 | 27.1 | 1.000141 |
| 22000.0 | 445.3 | -18.1 | -29.9 | 34.5 | 608.0 | 622.3 | 250.3 | 26.1 | 1.000138 |
| 22500.0 | 435.3 | -19.3 | -31.1 | 34.2 | 598.4 | 620.8 | 252.0 | 25.8 | 1.000136 |
| 23000.0 | 427.4 | -20.6 | -32.2 | 34.4 | 589.3 | 619.2 | 253.4 | 25.5 | 1.000134 |

STATION ALTITUDE 3489.00 FEET MSL
 19 MAY 0301 HRS MDT
 ASCENSION 140. 346

UPPER AIR DATA
 1390020346
 WHITE SANDS
 TABLE 13 CON'T

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LON DEG

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE AIR DEGREES | DEWPOINT DEGREES | REL.HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | WIND DIRECTION DEGREES (TN) | SPEED KNOTS | INDEX OF REFRACTION |
|-----------------------------|--------------------|-------------------------|------------------|------------------|------------------------|----------------------|-----------------------------|-------------|---------------------|
| 23500.0 | 410.6 | -22.0 | -33.3 | 34.6 | 580.4 | 617.6 | 254.7 | 25.3 | 1.000131 |
| 24000.0 | 410.1 | -23.3 | -34.5 | 34.8 | 571.6 | 615.9 | 253.1 | 24.7 | 1.000129 |
| 24500.0 | 401.7 | -24.6 | -35.6 | 35.0 | 562.9 | 614.2 | 251.4 | 24.1 | 1.000127 |
| 25000.0 | 390.4 | -25.3 | -36.4 | 34.6 | 552.9 | 613.3 | 249.8 | 23.6 | 1.000125 |
| 25500.0 | 385.3 | -25.9 | -37.1 | 34.0 | 542.7 | 612.6 | 249.3 | 22.7 | 1.000122 |
| 26000.0 | 377.1 | -27.2 | -38.2 | 34.0 | 534.0 | 611.1 | 248.8 | 21.9 | 1.000120 |
| 26500.0 | 369.1 | -28.5 | -39.5 | 34.0 | 525.4 | 609.5 | | | 1.000118 |
| 27000.0 | 361.3 | -29.7 | -40.5 | 34.0 | 517.0 | 607.9 | | | 1.000116 |
| 27500.0 | 353.6 | -31.0 | -41.6 | 34.0 | 508.7 | 606.3 | | | 1.000114 |
| 28000.0 | 346.1 | -32.3 | -42.8 | 34.0 | 500.5 | 604.7 | | | 1.000112 |
| 28500.0 | 338.8 | -33.5 | -43.9 | 34.0 | 492.5 | 603.1 | | | 1.000110 |
| 29000.0 | 331.6 | -34.8 | -45.0 | 34.0 | 484.6 | 601.5 | | | 1.000109 |
| 29500.0 | 324.6 | -36.1 | -46.2 | 34.0 | 476.9 | 599.9 | | | 1.000107 |

STATION ALTITUDE 3989.00 FEET MSL
10 MAY 01 0930 IRS MDT
ASCENSION NO. 346

MANDATORY LEVELS
13900±0340
WHITE SANDS
TABLE 14

GEODETIC COORDINATES
32.40043 LAT DEG
106.37033 LON DEG

| PRESSURE | GEOPOTENTIAL | TEMPERATURE | REL.HUM. | "IND DATA |
|-----------|--------------|--------------------------------|----------|-----------------------|
| MILLIBARS | FEET | AIR DEGREE DEGPOINT CENTIGRADE | PERCENT | DIRECTION DEGREES(TN) |
| 850.0 | 5037. | 13.4 | 4.3 | 130.2 |
| 800.0 | 6699. | 8.9 | 1.9 | 148.0 |
| 750.0 | 8450. | 8.3 | -5 | 173.1 |
| 700.0 | 10331. | 8.2 | -2.4 | 196.4 |
| 650.0 | 12353. | 3.4 | -5.7 | 201.8 |
| 600.0 | 14436. | -1.5 | -7.7 | 212.0 |
| 550.0 | 16686. | -6.9 | -15.6 | 29.5 |
| 500.0 | 19102. | -12.9 | -22.1 | 50. |
| 450.0 | 21709. | -17.9 | -29.3 | 46. |
| 400.0 | 24563. | -24.9 | -35.9 | 36. |
| 350.0 | 27712. | -31.6 | -42.2 | 24.0 |

STATION ALTITUDE 4051.37 FEET MSL
19 MAY 81 1037 HRS MDT
ASCENSION NO. 93

SIGNIFICANT LEVEL DATA
1390180093
LC-37
TABLE 15

GEODETIC COORDINATES
32°40'17.5" LAT DEG
106°31'23.2" LON DEG

| PRESSURE MILLIBARS | GEOMETRIC ALTITUDE FEET | TEMPERATURE DEGREES CENTIGRADE | AIR DEWPOINT CENTIGRADE | REL.HUM. PERCENT |
|-----------------------|-------------------------------|-----------------------------------|-------------------------------|---------------------|
| 880.9 | 4051.4 | 19.5 | 4.0 | 36.0 |
| 869.6 | 4414.7 | 17.4 | -2.2 | 36.0 |
| 850.0 | 5051.6 | 15.4 | 2.2 | 41.0 |
| 819.4 | 6067.1 | 12.3 | 1.6 | 48.0 |
| 809.6 | 6398.1 | 11.5 | 1.2 | 49.0 |
| 790.0 | 7069.3 | 9.9 | -1.9 | 47.0 |
| 770.8 | 7740.0 | 8.9 | -1.5 | 48.0 |
| 761.2 | 8081.7 | 10.0 | -2.3 | 42.0 |
| 751.4 | 8437.0 | 12.3 | -5.2 | 29.0 |
| 741.6 | 8798.6 | 12.6 | -2.8 | 34.0 |
| 700.0 | 10378.0 | 8.3 | -5.2 | 38.0 |
| 630.6 | 13177.6 | 1.4 | -8.9 | 46.0 |
| 613.2 | 13916.6 | -1.1 | -7.6 | 57.0 |
| 569.6 | 15846.2 | -3.8 | -11.7 | 54.0 |
| 552.4 | 16640.3 | -5.4 | -16.3 | 42.0 |
| 527.4 | 17828.9 | -8.5 | -18.3 | 45.0 |
| 511.0 | 18630.9 | -11.1 | -19.9 | 48.0 |
| 500.0 | 19179.2 | -12.5 | -24.4 | 36.0 |
| 470.8 | 20681.8 | -15.6 | -35.4 | 20.0 |
| 447.4 | 21943.1 | -17.2 | -35.8 | 18.0 |
| 400.0 | 24665.8 | -24.6 | -41.5 | 19.0 |
| 332.4 | 29012.4 | -34.6 | -49.5 | 20.0 |
| 300.0 | 31342.9 | -40.4 | | |

STATION ALTITUDE 4051.37 FEET MSL
19 MAY 81 1037 HRS MDT
ASCENSION NO. 93

UPPER AIR DATA
1390100093
LC-37

TABLE 16

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE AIR DEGREE CENTIGRADE | REL.HUM. PERCENT | DENSITY GM/CURIC METER | SPEED OF SOUND KNOTS | WIND DATA DIRECTION DEGREES (IN) | INPUT OF REFRACTION |
|-----------------------------|--------------------|-----------------------------------|------------------|------------------------|----------------------|----------------------------------|---------------------|
| 4051.4 | 880.9 | 19.5 | 4.0 | 1044.9 | 667.0 | 110.0 | 8.0 1.0002e9 |
| 4500.0 | 860.9 | 17.1 | 2.2 | 36.7 | 1037.2 | 664.0 | 9.2 1.0002e3 |
| 5000.0 | 851.6 | 15.6 | 2.2 | 40.6 | 1024.2 | 663.0 | 127.5 1.0002e1 |
| 5500.0 | 830.4 | 14.0 | 2.0 | 44.1 | 1011.3 | 661.3 | 133.3 1.0002e8 |
| 6000.0 | 821.4 | 12.5 | 1.7 | 47.5 | 998.5 | 659.5 | 137.7 1.0002e5 |
| 6500.0 | 806.6 | 11.3 | .9 | 48.7 | 985.0 | 658.0 | 144.6 1.0002e5 |
| 7000.0 | 792.0 | 10.1 | -.7 | 47.2 | 971.5 | 659.5 | 156.6 1.0002e4 |
| 7500.0 | 771.6 | 9.3 | -1.3 | 47.6 | 956.6 | 655.6 | 165.9 1.0002e40 |
| 8000.0 | 763.5 | 9.7 | -2.1 | 43.4 | 937.8 | 656.1 | 173.0 1.0002e34 |
| 8500.0 | 749.7 | 12.4 | -4.8 | 29.9 | 912.8 | 659.0 | 177.8 1.0002e23 |
| 9000.0 | 730.2 | 12.1 | -3.1 | 34.5 | 897.0 | 658.7 | 182.4 1.0002e22 |
| 9500.0 | 722.8 | 10.7 | -3.8 | 35.8 | 885.0 | 657.1 | 185.8 1.0002e19 |
| 10000.0 | 709.7 | 9.3 | -4.6 | 37.0 | 873.3 | 655.5 | 188.8 1.0002e15 |
| 10500.0 | 696.8 | 8.0 | -5.3 | 38.3 | 861.5 | 654.0 | 190.7 1.0002e12 |
| 11000.0 | 683.9 | 6.9 | -5.9 | 39.8 | 849.4 | 652.5 | 190.9 1.0002e8 |
| 11500.0 | 671.3 | 5.5 | -6.6 | 41.2 | 837.4 | 651.0 | 189.0 1.0002e5 |
| 12000.0 | 658.9 | 4.3 | -7.3 | 42.6 | 825.6 | 649.6 | 189.3 1.0002e4 |
| 12500.0 | 646.7 | 3.1 | -8.0 | 44.1 | 814.1 | 648.1 | 191.0 1.000198 |
| 13000.0 | 634.8 | 1.8 | -8.7 | 45.5 | 802.7 | 646.6 | 194.3 1.000195 |
| 13500.0 | 622.9 | .7 | -9.3 | 50.8 | 790.7 | 645.4 | 197.6 1.000193 |
| 14000.0 | 611.2 | -.3 | -7.8 | 56.9 | 778.7 | 644.2 | 200.9 1.000191 |
| 14500.0 | 599.7 | -1.2 | -8.8 | 56.1 | 766.7 | 643.1 | 203.7 1.000187 |
| 15000.0 | 588.3 | -2.2 | -9.9 | 55.3 | 755.0 | 641.9 | 207.2 1.000183 |
| 15500.0 | 577.2 | -3.1 | -11.0 | 54.5 | 743.4 | 640.7 | 211.3 1.000179 |
| 16000.0 | 566.2 | -4.1 | -12.6 | 51.7 | 732.0 | 639.5 | 215.0 1.000175 |
| 16500.0 | 555.4 | -5.1 | -15.4 | 44.1 | 721.0 | 638.2 | 218.6 1.000170 |
| 17000.0 | 544.7 | -6.3 | -16.9 | 42.9 | 710.4 | 636.7 | 220.1 1.000167 |
| 17500.0 | 534.2 | -7.6 | -17.7 | 44.2 | 700.2 | 635.1 | 221.4 1.000164 |
| 18000.0 | 523.9 | -9.1 | -18.6 | 45.6 | 690.5 | 633.4 | 222.1 1.000161 |
| 18500.0 | 513.6 | -10.7 | -19.6 | 47.5 | 681.1 | 631.5 | 223.1 1.000159 |
| 19000.0 | 503.6 | -12.0 | -22.9 | 39.9 | 671.4 | 629.7 | 224.7 1.000155 |
| 19500.0 | 493.6 | -13.2 | -26.1 | 32.6 | 661.0 | 628.3 | 227.1 1.000151 |
| 20000.0 | 483.8 | -14.2 | -28.9 | 27.3 | 650.6 | 627.0 | 230.4 1.000148 |
| 20500.0 | 474.2 | -15.2 | -32.1 | 21.9 | 640.3 | 625.8 | 234.2 1.000145 |
| 21000.0 | 464.8 | -16.0 | -34.0 | 19.5 | 629.5 | 624.8 | 238.7 1.000142 |
| 21500.0 | 455.5 | -16.6 | -34.9 | 18.7 | 616.4 | 624.0 | 243.9 1.000140 |
| 22000.0 | 446.4 | -17.4 | -35.9 | 18.0 | 607.7 | 623.1 | 249.5 1.000137 |
| 22500.0 | 437.3 | -18.7 | -36.9 | 18.2 | 598.6 | 621.5 | 251.9 1.000135 |
| 23000.0 | 428.4 | -20.1 | -38.0 | 18.4 | 589.5 | 619.8 | 251.3 1.000133 |
| 23500.0 | 419.6 | -21.4 | -39.0 | 18.6 | 580.7 | 618.1 | 248.2 1.000131 |

STATION ALTITUDE 4051.37 FEET MSL
 19 MAY 81 1037 HRS (DT)
 ASCENSION NO. 93

UPPER AIR DATA
 139018009J
 LC-37

TABLE 16 CON'T

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE AIR DEGREES CENTIGRADE | REL.HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | WIND DATA DIRECTION DEGREES (TN) | WIND DATA SPEED KNOTS | INDEX OF REFRACTION |
|--------------------------------------|-----------------------|---|---------------------|------------------------------|----------------------------|--|-----------------------------|---------------------------|
| 24000.0 | 411.1 | -22.8 | -40.1 | 18.8 | 571.9 | 616.5 | 245.6 | 23.3 |
| 24500.0 | 402.7 | -24.1 | -41.1 | 18.9 | 563.4 | 614.8 | 243.1 | 22.7 |
| 25000.0 | 394.3 | -25.4 | -42.1 | 19.1 | 554.4 | 613.3 | 245.3 | 22.5 |
| 25500.0 | 386.0 | -26.5 | -43.0 | 19.2 | 545.2 | 611.9 | 249.3 | 22.4 |
| 26000.0 | 377.9 | -27.7 | -43.9 | 19.3 | 536.2 | 610.4 | 251.0 | 22.3 |
| 26500.0 | 369.9 | -28.8 | -44.9 | 19.4 | 527.4 | 609.0 | 252.0 | 22.2 |
| 27000.0 | 362.1 | -30.0 | -45.8 | 19.5 | 518.7 | 607.5 | 245.4 | 20.7 |
| 27500.0 | 354.5 | -31.1 | -46.7 | 19.7 | 510.2 | 606.1 | 238.2 | 19.6 |
| 28000.0 | 347.0 | -32.3 | -47.7 | 19.8 | 501.9 | 604.7 | 238.3 | 19.8 |
| 28500.0 | 339.7 | -33.4 | -48.6 | 19.9 | 493.7 | 603.2 | 238.5 | 20.0 |
| 29000.0 | 332.6 | -34.6 | -49.5 | 20.0 | 485.6 | 601.8 | 238.9 | 20.4 |
| 29500.0 | 325.3 | -35.8 | -52.6 | 15.8** | 477.5 | 600.2 | 238.0 | 21.8 |
| 30000.0 | 318.3 | -37.1 | -56.2 | 11.5** | 469.6 | 598.6 | 236.2 | 24.0 |
| 30500.0 | 311.3 | -38.3 | -60.8 | 7.2** | 461.8 | 597.0 | 1.000103 | |
| 31000.0 | 304.6 | -39.5 | -68.3 | 2.9** | 454.2 | 595.4 | 1.000101 | |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 4051.37 FEET MSL
19 MAY 81 10:37 HRS MDT
ASCENSION NO. 93

MANDATORY LEVELS
1390180093
LC-37
TABLE 17

GEODETIC COORDINATES
32°40'17" LAT LEG
106°31'23" LON DEG

| PRESSURE MILLIBARS | GEOPOTENTIAL FEET | TEMPERATURE DEGREES | REL. HUM. PERCENT | WIND DATA DIRECTION DEGREES(TN) | WIND SPEED KNOTS |
|-----------------------|----------------------|------------------------|----------------------|---------------------------------------|---------------------|
| 850.0 | 5048. | 15.4 | 2.2 | 41. | 128.1 10.9 |
| 800.0 | 6720. | 10.7 | 2 | 48. | 149.9 15.0 |
| 750.0 | 8481. | 12.3 | -4.8 | 30. | 177.6 15.8 |
| 700.0 | 10368. | 8.3 | -5.2 | 38. | 190.2 15.5 |
| 650.0 | 12359. | 3.4 | -7.0 | 44. | 191.0 22.9 |
| 600.0 | 14471. | -1.2 | -8.8 | 56. | 203.0 32.0 |
| 550.0 | 16731. | -5.7 | -16.4 | 42. | 219.4 33.9 |
| 500.0 | 19152. | -12.5 | -24.4 | 36. | 225.3 31.8 |
| 450.0 | 21767. | -17.0 | -35.5 | 18. | 247.0 21.3 |
| 400.0 | 24624. | -24.6 | -41.5 | 19. | 242.5 22.6 |
| 350.0 | 27768. | -31.8 | -47.3 | 20. | 238.3 19.7 |
| 300.0 | 31280. | -40.4 | | | |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

